

# W5YI

## National Volunteer Examiner Coordinator REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

Fred Maia, W5YI, Editor, P.O. Box 565101, Dallas, TX 75356-5101

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...and much, much more!

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## ARRL FILES FOR CODE-FREE HAM CLASS

"The League has carefully researched and evaluated this subject. It is not one which yet enjoys universal acceptance in the amateur radio community. It is, however, one which the League now supports as beneficial to the future, short and long term, of the Amateur Service. The only way the plan can fail is if the Amateur Service rejects the Communicator class licensees as full-fledged members. This the League firmly believes will not occur, as the Amateur Service has a tradition of mutual assistance, and guidance of newcomers by the more experienced members. Newcomers will strengthen the Service. Once and for all, those who have a true interest in becoming radio amateurs will have the opportunity to join, unfettered by unfounded preconceptions about entry barriers. They will not only have the opportunity to become amateurs, but will also have a more favorable exposure to the benefits of having a personal, cognitive communications skill, which is shared worldwide in the Amateur Radio Service. The learning of Morse code should be viewed more as an opportunity than as a burden, or a hurdle over which they must jump."

(Excerpt from ARRL Petition for Rulemaking)

As expected, the American Radio Relay League submitted a Petition for Rule Making to the Federal Communications Commission on August 31 seeking "Establishment of a Class of Amateur Radio Operator License Not Requiring a Demonstration of Proficiency in the International Morse Code."

The League proposed a new sixth class Communicator license offering specific, limited privileges on amateur frequencies above 220 MHz. There was no mention that these privileges would actually be above 222 MHz since the FCC reallocated 220-222 MHz to the Land Mobile Service.

The filing came a little more than a month after League officials, meeting at their July board meeting, voted to seek a ham class which did not require knowledge of Morse code. The vote was not overwhelming in favor of a code-free ham class. Nine directors were in favor; six opposed.

The Board not only considered the views of its members but also the recommendations of a special study committee which for months had gathered

information on the subject and rendered a comprehensive report. (See 4/15/89 Report). That Committee was comprised of representatives of the Amateur Radio Industry, League elected representatives and individual amateurs. They reached four basic conclusions.

- (1) there is a perception that the code proficiency element of the amateur entry level examination is a significant barrier;
- (2) ...the code proficiency requirement does not act as an appropriate filter to weed out undesirables;
- (3) ...there are many good reasons for maintaining code proficiency;
- (4) ...there is nothing antiquated or irrelevant about the code "but this is a matter that some individuals must learn for themselves, in order to appreciate that relevance."

The Board adopted a slightly more conservative proposal than the Committee recommended. The League said the changes reflected the input received from the amateur community. It appeared

overall that the attitude of amateurs was significantly more favorable toward a codeless amateur license than in 1983.

The well researched and prepared petition was authored by League attorney **Chris Imlay, N3AKD**, and comprises some 25 typewritten pages. It also contained a very interesting history of the no-code ham movement in the United States.

## THE COMMUNICATOR CLASS

The ARRL maintains that the *Communicator* class ticket is not an entry-level license in the same sense as the Novice class license. Earning the new codeless license would require the applicant to pass a written examination somewhat more comprehensive than the present Technician class theory examination, including some questions relating to Morse Code, but without a Morse receiving, sending or recognition requirement. The code questions would be on the tradition and utility of the Morse code.

Three accredited volunteer examiners from the VEC System would administer the examination, and upgrading to a Technician class of license similarly would involve taking a five-word-per-minute code examination similarly administered. "The need for absolute security, and the perception of the same, is critical not only to the success of the program in fact, but also to its acceptance among present licensed amateurs. The amateur community must be convinced that the new licensees obtain their licenses through a rigidly monitored, publicly administered examination program, in order that it avoid, and be perceived to avoid, compromise. The license carries with it privileges not available to Novice licensees, and as such is properly included in the VEC program."

"There should be an upgrade path from the *Communicator* class of license to the present Technician license by way of a five-word-per-minute Morse code examination element, administered through the established Volunteer Examiner system." The petition clearly states that all *Communicator* and Novice licensees would have to be retested under the VEC program at 5 WPM code before they could qualify for a Technician ticket.

"No credit for element 1(A) shall be afforded those seeking a Technician class operator license on or after the effective date of the *Communicator* class operator license by virtue of the possession of an

unexpired license which incorporates that element." It will be interesting to see what Novice level and VEC System examiners think of that proposal.

ARRL said *Communicator* applicants would be required to pass the current 30 question Novice written test element 2 and a beefed up 30 question Technician element 3(A) written examination to obtain a *Communicator* license. The present element 3(A) contains 25 questions. The additional five questions would be on: Amateur digital communications techniques (3 questions) and two questions on the: Use and application of Morse code.

It is unclear if this would require increasing the nine examination topics to eleven to insure their inclusion in written tests or whether these questions could be added to the existing "operating procedures" and/or "signals and emissions" subelements. Specific questions merely added to existing subelement pools need not be asked in all examinations.

*Communicator* privileges would be all amateur frequencies and authorized modes above 220 MHz, at a maximum output power of 250 watts. "There is a perception that the VHF bands below 220 MHz are overcrowded, or are otherwise inappropriate for *Communicator* use. The League ascertained that there exists a great deal of acceptance of a codeless amateur license if the privileges were limited, as proposed, to frequencies above 220 MHz."

The ARRL also believes "...there should be a strong incentive (such as the attainment of 2 meter privileges) for codeless licensees to upgrade their license class..." A *Communicator* licensee may not be a control operator of a repeater or auxiliary station. With respect to power levels, the League saw no need to permit the *Communicator* class licensee to operate at greater than 250 watts PEP output, given the frequency bands available. "...greater power can be reserved for higher-class licensees, so as to create the incentive to upgrade."

Call signs would be assigned from the Commission's "Group D" block; 2 prefix letters, one call sign region number and three suffix letters. "This is most important, as the goal of the codeless amateur license is to bring such licensees into the 'mainstream' of the Amateur Radio Service, and to encourage them to upgrade their license class. It is thus important not to 'label' these licensees as distinct from other entry-level amateurs, or attach a stigma to the license class."

1 Each 10 or more (Qty.)  
12.00 11.00 \$1.00 postpaid

QUESTION POOLS  
N - P - E  
Technician - Element3(A)

ARRL  
Rules

AMATEUR RADIO QUESTION POOLS  
contain one...  
questions, multiple

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The League acknowledged that adding a sixth amateur class to an already-complex licensing structure adds somewhat to the burden of the volunteer examiner program, which has thus far performed extremely well. ARRL directors asked their officers to examine the amateur licensing structure as part of their long-range planning effort. Overall, it was determined that the advantages of implementing a new license class now - outweighs the disadvantages, taking into account the desire of many amateurs and prospective amateurs to open this additional gateway to amateur radio.

## NO-CODE BACKGROUND

The ARRL said the current resurgence in the debate about the creation of a codeless amateur license is interesting, given the fact that it is a subject that has been repeatedly considered over a span of years.

In 1974, in Docket 20282, the FCC considered the possibility of a codeless amateur license which the League indicated it could support. The "Basic Amateur" license class was to have included Novice theory and a "code recognition" but not a code text copying requirement. Five years later the FCC closed the matter without action stating they required current amateur thinking on the issue in a separate proceeding.

1978's Docket 78-250 proposed a new class of amateur operator license without a Morse code proficiency requirement which would be restricted to handicapped persons. It too was dropped when handicapped amateurs generally did not desire special treatment in the substance of amateur examinations. Rather, they merely asked that examiners take into account their specific needs in procedural aspects of examination administration. The FCC adopted this position and that policy continues to this day. (See §97.509)

Prior to the 1979 *World Administrative Radio Conference*, Article 41 of the international radio regulations did not require Morse code knowledge if the amateur operation was exclusively above 144 MHz. The ARRL said the United States WARC-79 delegation disregarded the recommendation of its FCC convened *Advisory Committee for Amateur Radio* (ACAR) and other public comments which suggested no changes to Article 41.

Surprisingly, the United States WARC delegation

proposed to drop the international requirement of Morse code proficiency for operation below 144 MHz in favor of a "recommendation" that the various countries of the world have such a requirement. The U.S. proposal was defeated by the WARC conferees. The *ITU Radio Regulations* were ultimately changed, however, to require Morse code knowledge for amateur operation on frequencies below 30 MHz, instead of 144 MHz. Only the 50-54 MHz band was affected by the action.

The League said that event was received extremely negatively by the amateur radio community at a time when the FCC was actively considering a codeless amateur license in the United States. "...it is not surprising that there existed a strong distrust of the Commission on the subject."

The early 1983 release of Docket 83-28 coincided with fiscal and manpower problems at the FCC. The Commission's examination system "...was in great disrepute, and frankly in disarray," the ARRL said. Even so, the FCC proposed on its own initiative two codeless license alternatives: (1.) the elimination of the Morse code examination element from the Novice class license or (2.) the creation of an entirely new class of license involving a written examination aimed primarily at digital communication techniques.

Without referring to *Dick Bash/KL7IHP* by name, the ARRL discussed the negative aspects of "at least one firm" publishing study aids which included the exact questions contained in FCC license exams. The perception was, according the League, that the Morse code test was the only portion of the amateur radio examination process that meant anything at all.

To solve the written examination problem, the Congress, in 1982 enacted *Public Law 97-259* to allow the Commission the utilize volunteer examiners in the Amateur Service. The eventual result was a question pool system from which examiners would draw certain questions according to a formula to prepare their written examinations. To eliminate applicants from "shopping" for easier examinations, the VEC's ultimately agreed among themselves that they would all use exactly the same answers and multiple choice answer formats verbatim.

The ARRL said the volunteer examination system was not yet in place in 1983 and "...it was not clear whether a private sector examination plan

was feasible, much less sufficiently secure to prevent cheating." For this (and other) reasons, the amateur community thus rejected the Commission's 1983 codeless license proposal by a ratio of twenty-to-one. The Commission terminated the proceeding without action in December of 1983.

## NOVICE ENHANCEMENT

The League maintains the "enhanced" Novice class privileges have been a great success in terms of reducing attrition and encouraging upgrading. "What the increase in Novice privileges has not accomplished, however, is to increase significantly the overall rate of influx of new Novices in the Amateur Service. The relatively flat rate of increase in the number of new amateurs since the 1987 '*Novice Enhancement*' proceeding once again has fueled the debate about a codeless entry level amateur license. There is a desire among amateurs for growth in the Amateur Radio Service, and a desire to reveal to more people the benefits and opportunities of the Service."

The ARRL acknowledged the perception that the Morse code requirement is a barrier to amateur radio entry and creation of a codeless license might attract newcomers.

## CONCLUSION

The League believes "...provided that the Commission avoids the mistakes of administrations which have enacted unsuccessful codeless license classes, and follows the guidance of those which have enacted successful ones, the creation of a codeless amateur license should be successful here as well. The key ingredients seem to be a substantial written examination, significant incentives to upgrade, provisions for including codeless licensees in the on-air activities of other licensees and assimilating them into the mainstream of amateur radio."

ARRL "respectfully requests that the Commission, at an early date, release a *Notice of Proposed Rule Making*, proposing the creation of a *Communicator* class amateur operator license..."

## NOW WHAT HAPPENS?

The ARRL no-code petition will be placed on official Public Notice - probably this coming week, along with 11 other related petitions that propose different types of no-code license or other changes in the

licensing structure or operator privileges or regulations. (One fellow wanted to change code speeds.)

Each will be assigned "RM" (Rule Making) serial numbers. These numbers are issued out of the (FCC) Office of the Secretary. The FCC has just received some recent additional no-code petitions and these will be considered to be comments on the existing petitions.

The Public Notice will begin a 30-day period during which time interested persons may file comments telling the FCC why they think any or all of the petitions should or should not proceed to the rule making stage. The idea here is to enable the FCC to determine preliminary public reaction to the proposals. If there is vehement opposition the FCC could well decide that the proposal should not go forward. Similarly, if there are substantial expressions of support, the FCC will know that there is merit to the idea and will likely proceed.

Following this comment period there will be a short reply comment period, in which people on each side of the issues can answer the points raised by their opponents. After this exchange of views, the FCC will decide whether to proceed to rule making.

It is important to note that if the petitions get RM Numbers, it means the the FCC has made the preliminary decision to go forward. It has the power to dismiss the petitions out of hand and it will do so if it does not wish to proceed. So the assignment of an RM Number in and of itself represents a first positive step toward a no-code license.

The comments at the RM stage are NOT the place to get into a debate about the particulars of the proposals. The comments, either in favor or in opposition, need only manifest the ultimate position of the commenting person or group.

In other words, there will be time enough to argue about whether the no-code license should include privileges at 2 meters. The important thing is to let the FCC know one's position on the ultimate issue: whether you are in favor of some form of no-code license or not.

The preliminary round of comments at the RM stage is not just a formality. However, in view of the ARRL's filing, one has to believe that the matter will proceed to rule making. The ARRL does not file trifling petitions. Moreover, this matter is strictly

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internal to Amateur radio, and on such matters the FCC pays great deference to the desires of the League. So if the ARRL wants a no-code license, it is likely to get it.

The Commission staff is supposed to take preliminary comments into account when deciding whether to grant the Notice of Proposed Rule Making (NPRM) desired by the petitioner. Many petitions never receive RM numbers because they are judged to be repetitive, frivolous or otherwise not deserving of serious consideration. Most, but not all, of the petitions that do receive RM numbers will eventually make it to the NPRM stage.

The FCC's Personal Radio Branch has a small staff and budget for the large amount of work they have to do in researching petitions, drafting rules, working on enforcement cases, monitoring the VEC program ...and the like.

For this reason, Branch Chief **John Johnston/ W3BE** told us informally that he thought amateurs ought to hold their comments until the NPRM stage: "We're not really looking for comments on these items. It would just slow things down to throw in comments at this phase. It would be better to wait until a NPRM to file comments. We still have a pile of other petitions to work on, some that people have been waiting a long time for. While we were working on the Part 97 rewrite, the hams kept on thinking of things to do."

Following the preliminary round of comments, the FCC will decide whether to proceed. The next thing that will come out will be either a *Memorandum Opinion and Order*, killing the proceeding (once the RM number is assigned, the FCC can no longer dismiss it out of hand; it must explain why it changed its mind); or a Notice of Proposed Rule Making (NPRM).

If the FCC issues the NPRM, it will represent the FCC's first cut at what the no-code rules and privileges should look like. (The Commission could also issue a *Notice of Inquiry* which seeks more information, but this path of action is extremely doubtful.)

The NPRM will be a distillation of all of the suggestions contained in the various petitions, plus anything useful that might have been said in comments. This is where the heavy analysis comes in. This is where the particulars are hammered out: what bands; what privileges; ...what testing requirements.

We expect a *Notice of Proposed Rulemaking* will consolidate some or all of the petitions within the next six months - although it could happen by Christmas. In other words, the FCC will not release 12 different no-code NPRMs. Instead a single no-code NPRM will emerge, possibly accompanied by NPRMs dealing with rules other than the Morse code requirement. This scenario is only speculation on our part. FCC staff are keeping their plans confidential.

In any event, don't expect fast final action by the Commission. Rule making takes time. Even if this matter is put on a fast track for decision, a no-code license is probably still a year off.

## OTHER PETITIONS THE FCC HAS ON HAND

We have reported on several other petitions in previous issues. Here are highlights of several additional petitions that have been submitted to FCC (none of them have RM numbers yet, so comments on them are not sought at this time):

**Clement Bourgeois Jr./N5ADK of Erath, Louisiana**, would like the FCC to stretch the 1 year time period during which credit is given for passing the code or theory portion of the exam. He would like the period to be made indefinite or made to last as much as 10 years, to give elderly applicants more time to pass both parts.

**Robin Cross/WD0FEN of Bettendorf, Iowa**, wants Novices to have access to the entire 30m band (10.1 - 10.15 MHz) for CW emissions. He cites the fact that the Novice subband at 40m is only authorized in ITU Region 2, and observes that SW broadcast stations in other Regions cause major interference to 40m operations. Cross also alleges that the 30m band is underutilized.

**Gerald C. Larson/W7ASA of Boise, Idaho**, cites SW broadcast and packet interference in his petition to allow General, Advanced and Extra Class licensees to operate CW to the low edge of 80, 40, 20 and 15 meters, thus eliminating the special operating privileges that Extras have on CW.

**William H. King/W0LKD of Colorado Springs, Colorado**, wants A2B and F2B emissions to be authorized in bands where F1B is now authorized. A2B and F2B are tone-modulated CW emissions identified by the new rules as MCW. F1B is RTTY. He gave no justification for the request.

**Donald Bremer/KB6LO of Santa Rosa, California**, also petitions to allow F2B for packet data emissions at 29.2 - 29.3 MHz. This segment is informally divided into a 200 kHz part for repeater operations; 200 kHz for satellite; and 300 kHz for other modes. Bremer says that a 100 kHz segment for digital communications would not encroach on anyone.

**Cord J. Davidson/KB5EKX of Batesville, Arkansas**, petitions to allow the use of FM packet on 29.0 - 29.3 MHz at 1200 baud as an adjunct to the existing VHF packet network.

**Kevin D. Biekert/KB5AQV of Houston, Texas**, wants the FCC to increase the allowed data rate on HF from 300 baud to 1200 baud. Biekert's reasoning is that "many people are upset about packet radio communications. Wherever one goes he seems to find this terrible screeching sound." A faster data rate would increase efficiency, he argues, reducing objectionable interference.

**Charles G. Clay Jr./KD3KW of Norristown, Pennsylvania**, is an engineer working on the Space Station Freedom program. He wants the FCC to modify §97.207(a) to remove the Extra Class license requirement for space operation. He proposes that U.S. amateurs be able to operate in space to the extent of their privileges as in any other mobile operation from U.S. territory. Clay observes that astronauts W5LFL and W0ORE hold Advanced Class licenses, and are thus ineligible to operate from space under a strict interpretation of §97.207.

"The U.S. is expecting to have an operational manned space station in the 1990's," Clay says. "The incorporation of this amendment will provide for amateur operation under the conditions that will prevail in space for the foreseeable future." He mentions that he is an Extra Class licensee and is not personally acquainted with anyone who is an astronaut.

**Michael S. Bilow/N1BEE of Cranston, R.I.**, points out inconsistencies in the rules regarding frequency shift in digital communications. He proposes to delete the limitations on frequency shift above 50 MHz and to apply bandwidth restrictions to all digital codes above 50 MHz.

**Eric G. Hogberg/W4TAH of Sarasota, Florida**, is the Amateur Auxiliary Coordinator for South Florida. He requests that amateurs committing multiple

violations be required to be retested. "The idea behind the retest is to furnish a deterrent. The consensus of most amateurs is 'I hope I never have to take the test again,' especially the CW requirements. ...They will naturally not want to be retested, so they will obey the Rules and Regulations a lot closer."

**Tony Thurman/KE7DA of Flagstaff, Arizona**, presented the FCC with a "concept paper" on privatization of Amateur Radio licensing. He wants to turn the license issuance function over to a private organization to provide better service and reduce federal expenditures. Although not labeled as a *Petition for Rule Making*, the FCC staff appear to be treating it as such. The item has not received a RM number yet, however.

Thurman cites many perceived problems with the current system of FCC licensing, including delays, lost licensing material, multiple licenses, inability to fulfill requests for special callsigns, and even erroneous calls. Apparently, the FCC's Gettysburg, Pennsylvania, facility sometimes changes an applicant's call upon upgrade, even if no change was requested. Or, they may retain the present call when a new one was requested.

"Since amateur radio operators regard call signs as intensely personal and unique, failure to honor requests regarding call signs is especially distressing," Thurman says. "Worse yet, during the interim between an error being made and the correct call sign being issued...the amateur radio operator is obligated to use the incorrect sign. This creates havoc for individuals involved in contest work or other activities where personal identity is important."

Thurman criticized the recently-denied PRB-3 proposal, which would have authorized private sector groups to issue special amateur callsigns. For enforcement purposes, databases would have had to be kept to relate the special calls to the regular, FCC-issued amateur call.

His solution would be to create a special, for-profit licensing service. Thurman cautions that the ARRL should not be allowed to operate the private licensing service due to the possible cross-subsidization of ARRL activities with funds paid by non-ARRL member license applicants.

Thurman offered the following income statistics for the service for a year, based on 1988 figures and estimates:

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Quantity	Service:	Fee:	Total:
21,000	New amateur licenses	@ \$20	\$420,000
26,342	License upgrades	@ \$15	395,130
35,000	License renewals	@ \$10	350,000
5,000	Special callsigns	@ \$45	225,000
5,000	Rapid delivery charges	@ \$20	100,000

**Grand Total Collected Fees:** **\$1,490,130**

He did not provide any cost figures. Thurman asked that "...a formal solicitation be announced, which provides specifications necessary for preparation of detailed business plans. Organizations can then respond with proposals for services to take effect with the beginning of the new fiscal year."

Special legislation would probably be needed in order for the FCC to cede its licensing authority to a private company. There are private frequency coordinators in other radio services, but their function is to screen applications for correctness and identify available frequencies. They do not issue licenses -- only the FCC does that.

The Thurman proposal is likely to become quite controversial, should it make it to the NPRM stage. But it may appeal to a cash-strapped FCC.

## ERRATA TO PART 97 RELEASED

In our August 15 issue, we reported that the ARRL found numerous errors in the new *Part 97 Rules*. The League submitted a lengthy list of recommended corrections. The FCC responded by issuing an errata sheet on September 7. Importantly, the three-page errata release appears only to cover minor typographical errors in the Rules and does not make all of the many changes recommended by ARRL.

The Commission did respond to ARRL comments regarding control of packet digipeaters. FCC expanded upon §97.109, Station Control, to clarify that stations transmitting RTTY or data emissions on 6m or shorter wavelength bands, and certain other types of stations, may be automatically controlled.

Some of the FCC staff told us they considered many of the ARRL recommendations to be "substantive" in nature, going well beyond merely typographical errors. Therefore, it looks like the League will have to resubmit its requests in the form of petitions for rulemaking.

## JULY AMATEUR LICENSING STATS

July	1986	1987	1988	1989	
New Amateurs	2806	870	1943	1673	
<b>Upgrading:</b>					
Novices	1893	1224	1307	1734	
Technicians	615	237	408	520	
Generals	667	251	330	349	
Advanced	431	176	282	276	
<b>Total:</b>	<b>3606</b>	<b>1888</b>	<b>2327</b>	<b>2879</b>	
<b>Renewals:(*)</b>					
Total Renew:	4813	2766	3666	*178	
Novices	289	204	287	*21	
<b>Purged:(*)</b>					
Total Drop:	2549	1551	1421	1477	
Novices	1903	1048	759	764	
<b>Census:</b>					
<i>Indiv. Oper.</i>	<i>420193</i>	<i>428854</i>	<i>437266</i>	<i>461286</i>	
Change/Year	+9906	+8661	+8412	+24020	
<b>Indiv. Operators by Class:</b> (and % of total)					
<b>Extra</b>	<b>Advan.</b>	<b>General</b>	<b>Tech.</b>	<b>Novice</b>	<b>Total:</b>
<b>July 1986:</b>					
40282	98240	116884	85820	78967	<b>420193</b>
9.6%	23.4%	27.8%	20.4%	18.8%	100%
<b>July 1987</b>					
42651	97906	114617	87759	83921	<b>428854</b>
10.0%	22.8%	26.7%	20.5%	19.5%	100%
<b>July 1988:</b>					
45716	98420	113405	98370	81355	<b>437266</b>
10.5%	22.5%	25.9%	22.5%	19.8.6%	100.0%
<b>July 1989:</b>					
49047	101060	116021	110750	84428	<b>461286</b>
10.6%	21.9%	25.2%	24.0%	18.3%	100.0%
Club/					
RACES &	(1986)	(1987)	(1988)	(1989)	
Military	2684	2456	2336	2474	
<b>Total Active</b>	<b>422877</b>	<b>431310</b>	<b>439602</b>	<b>463760</b>	
% Increase	+3.53%	+2.00%	+1.93%	+5.5%*	

**NOTE:** Again we remind you that the U.S. amateur service is not really expanding at a 5.5% rate. Due to the implementation of the 10 year term license in 1984, there were 25,806 less renewals this year. (28,713 during the first seven months of 1988, only 2,907 for the comparable period this year.) Assuming the same drop-out rate, if you adjust for this difference, the number of U.S. amateurs would be 2,083 less (-.5%) amateurs than a year ago!

(Source: FCC Licensing Facility, Gettysburg, PA)

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## AMATEUR LICENSING STATISTICS

...indicating Amateur Radio Service growth since **Novice Enhancement** took effect on 3/21/87:

**1987:**

Month	Extra	Advan.	General	Tech.	Novice	TOTAL
4	41634	97504	114943	86118	82764	422933
5	42136	97880	115045	87631	86175	428867
6	42515	98018	114969	89167	84822	429491
7	42651	97906	114617	89759	83921	428854
8	41914	98114	114737	90675	83238	429678
9	43214	98147	114428	91633	82779	430201
10	43479	98287	114487	92267	82216	430746
11	43608	98383	114396	92618	82296	431301
12	43902	98610	114398	93466	83013	433389

**1988:**

1	43970	98408	113958	93675	82400	432411
2	44205	98408	113949	94361	82390	433313
3	44617	98505	113900	95256	82705	434983
4	44819	98403	113623	95810	82780	435435
5	45208	98493	113648	96888	82675	436912
6	45399	98343	113342	97518	81801	436403
7	45716	98420	113405	98370	82355	437266
8	45909	98292	113068	98944	80502	436705
9	45152	98354	112989	99603	79730	436828
10	46413	98386	112954	100176	79034	436963
11	46735	98463	112974	100878	79988	439038
12	46885	98681	113082	101495	80168	440311

**1989**

1	47221	99164	113823	102931	81028	444167
2	47500	99491	114256	104113	81029	446442
3	47734	99811	114606	105002	82259	449412
4	48049	100183	114975	106341	83371	452919
5	48471	100572	115404	108158	84266	456871
6	48711	100808	115686	109296	84806	459307
7	49047	101060	116021	110730	84428	461286

**Increase since April 1987:**

+17.8% +3.6% +0.9% +28.6% +2.0% +9.1%

(Source: FCC Licensing Facility, Gettysburg, PA)

## HEALTH HAZARDS OF RF RADIATION

What are the biological effects and potential health hazards of RF radiation at amateur radio frequencies? We reviewed data from several research studies. Here are some key excerpts. The bottom line is that no one seems to know. The issue is very complex.

One type of nonionizing radiation which our bodies ordinarily cannot detect is radiofrequency radiation including radio signals and microwaves. Every member of our modern technological society is exposed to nonionizing radiation, from natural sources such as the sun and manmade sources like telecommunications and power lines.

As a general rule, the energy associated with electromagnetic radiation depends on its frequency (or wavelength); the greater the frequency and shorter

the wavelength; the higher the energy. It has been known for some time that high intensities of RF radiation can be harmful due to the ability of radio frequency energy to heat biological tissue rapidly. This is often referred to as "thermal" effects.

The amount of energy absorption depends on the intensity, duration, pattern, and frequency of the radiation, and our body's size, shape, and composition (percentage of bone, fat, muscle, etc.) How well the heating is tolerated depends on factors such as age, physical condition, outside temperature and humidity, physical activity and clothing.

Two areas of the body, the eyes and the testes, can be particularly susceptible to heating by RF energy because of the relative lack of available blood flow to dissipate the excessive heat load. Although nonionizing radiation can heat tissues, generally we cannot feel this effect. Maximum whole-body absorption of RF energy by humans will occur at a maximum rate when the frequency of the radiation is between about 30 and 300 MHz. This is known as "resonance" phenomenon.

The 1982 ANSI guidelines recommend frequency-dependent exposure limits covering RF frequencies from 300 kHz to 100 GHz. The guidelines incorporate data showing that the human body absorbs RF energy at some frequencies more efficiently than others. The most restrictive limits are in the frequency range of 30-300 MHz where maximum levels of 1mW/cm<sup>2</sup>, as averaged over any six minute period of exposure, are recommended.

The harmful biological effects of exposure to low-levels of RF radiation are generally unknown and unproven. There is disagreement over exactly what levels of RF radiation are "safe," particularly with regard to low levels of exposure.

The exposure guidelines of Eastern Europe and the USSR are much stricter than those used in the USA. In the USSR, exposure limits tend to be set below the level at which any observable biological effect is found; in the USA, exposure limits typically are set below the level of any harmful biological effects and incorporate a margin for safety.

Amateur base station antennas usually operate with higher power levels but generally have not been of concern since they are usually mounted at significant heights. Hand-held portable radios using low power are also not normally considered as possible

WOULD YOU LIKE TO BECOME A VOLUNTEER EXAMINER?

"I am a currently licensed Extra Class amateur radio operator and wish to be a volunteer examiner. I have never had my station or operator license revoked or suspended. I do not own a significant

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sources of hazardous exposure to RF fields.

However, questions relating to the safety of these devices have arisen because the RF signal is emitted in the immediate vicinity of the user's head and some of these radios use microwave frequencies. At least one manufacturer routinely includes advisory information with its radios recommending that the radio be operated in a vertical position at a distance of about 2-inches from the face.

Significant absorption might occur if the transmitting antenna of the radio were placed within a distance of about 1-2 centimeters (less than an inch) from the head or eye. If this user position occurred, the overall time-averaged exposure would probably be acceptable. Therefore, if hand-held radios are used properly there is no evidence that they could cause hazardous absorption of RF energy.

There is currently no official federal standard for exposure of the general public to RF radiation although EPA (the Environmental Protection Agency) and the National Institute for Occupational Safety and Health (NIOSH, the OSHA research arm) are working on recommendations.

## Rules and Regulations Part 97 Rule Book

Amateur Radio Service

**\$2.95 postpaid**

Complete text of new FCC Rules  
that went into effect 9/1/89

W5YI; Box 565101; Dallas, TX 75356

## IMPROVING THE PORTABLE RECEIVER

A new antenna that gives portable HF receivers improved directivity and interference rejection has been developed by **O.G. "Mike" Villard, Jr./W6QYT**, a Senior Scientific Advisor at the research firm SRI International in Menlo Park, California.

The unidirectional antenna suppresses interference from ground or sky waves or noise sources such as power lines. According to a SRI technical paper, the antenna is suitable for home construction, works well indoors and requires no hard connection to or modification of the receiver. The receiver must be self-contained and battery powered.

The antenna uses a fixed capacitor and a flat rectangular coil whose output is coupled to the receiver

and its whip via short wires. One wire is wrapped around the whip and the other is placed close to or under the receiver. The output of the resonant circuit is added to the whip signal with a 90 degree phase shift provided automatically by the coupling method. The result is a null that can be oriented towards the interfering station. The antenna can be tuned by moving a hinged metal plate near the loop.

The design is one of several small, highly directional HF receiving antennas W6QYT and colleagues have developed. The *Voice of America* retained SRI to study how listeners could build simple antennas capable of overcoming the effects of jamming.

Dr. Villard is a renowned expert in antennas and propagation. He was also instrumental in the growth of SSB after World War II. His article on the Coplanar Twin Loop (CTL) antenna, a "spatial notch filter", appeared in the September 1988 QST. The CTL is used with portable, battery-operated receivers or with larger receivers that require coaxial cable input.

## "NEW" ATLAS/DENTRON OWNER INDICTED

**Michael D. Harrison, 36, WB2PTI**, Oceanside, New York, was indicted on 50 counts of mail fraud on August 28th by the United States District Court grand jury for the Eastern District of New York, Criminal Division. Each count carries a five year prison term and a fine of \$250,000 - which adds up to a whopping 250 years in jail and \$12.5 million.

The twelve page indictment charges that between August 1988 and January 1989, Michael D. Harrison, (also known as John McNamara and Mike Hanson) "knowingly and willfully" devised a scheme to "obtain money by means of false and fraudulent pretenses and representations" using the mails.

The indictment charges as part of that scheme, Michael D. Harrison placed full page advertisements in *73 Amateur Radio* magazine stating that "Atlas Radio and Uniden Electronics - Two leaders in American Ham Radio ...have joined forces to bring you this new exciting product: the 2510 ten meter mobile transceiver."

The ad indicated that Atlas Radio, was operating out of a post office box in Lynbrook, New York, and gave a Long Island telephone number. The ten meter transceiver was offered at \$219.95. Advertisements were also placed in the *Ham Trader Yellow*

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Sheets and Popular Communications magazine the indictment said.

The grand jury said Harrison "was not authorized to sell Uniden products or to use the Uniden name" in its advertising and "accepted orders and payments for the Uniden transceiver from numerous potential customers." Harrison "...negotiated and endorsed the checks and money orders sent by said customers in the name of Atlas Radio Co., Inc." and "...neither shipped the merchandise ordered nor refunded the payments made by the numerous potential customers." The indictment said that customers were told to send their orders through the U.S. mails and that an "authorized depository for mail matter" was used.

The indictment lists fifty documented complaints complete with date of mailing, amount paid and the senders name and address. We decided to telephone some of them. None of the senders were aware that a federal grand jury had indicted Harrison for mail fraud. All said they neither received their radios nor a refund and had not heard about the status of their complaint for months.

The amount that Harrison allegedly got away with is very substantial and the fifty counts in no way represent the total extent of the swindle. Count No. 8 indicates that **Garth M. Conover/N2BMP** got taken for \$3,044.00; Count No. 15 shows **John C. Fandl/WA2FUF** lost \$879.00; and Count No. 37 **Bill G. Rhoads/WA4ULI** \$2,181.00. Count No. 4 **Louis D. Baker** (not a ham - but was studying to become a Novice), Count No. 34 **Frank Pisello/WB2CGB** and Count No. 36 **Harold Page/WB1ADY** all got hooked for \$439.90 (two radios). The other forty-four counts show a loss of the value of one radio.

We got onto this scam when we started getting phone calls from amateurs around Christmas time. The December issue of 73 Magazine had carried a full-page two color Atlas Radio ad indicating Atlas Radio was now back in business. Atlas, previously a manufacturer, was now in the marketing business. They were offering the President 10-meter mobile transceiver at a "you won't be disappointed" price as a joint effort with Uniden. A smaller ad indicated that price to be \$219.95 - prepaid to all fifty states. The ad inferred that Atlas was the same Atlas that made the 180, 210X, 215X, 350XL trasnsceivers - an untrue statement as it turned out.

We called Uniden (whose headquarters is just up

the road here in the Dallas area) and talked to a ham who we knew in their marketing department. He said Uniden was also getting complaints and that they knew nothing about Atlas much less "joining forces" with them. Furthermore, we were told that the \$219.95 retail was not possible since the distributor cost on the 2510, plus transportation to the customer and a "\$25 rebate" offered by Harrison "for waiting for delivery" put the radio under cost. Uniden's legal department hopped into the picture.

"Atlas" refused to take credit cards "because these prices are so low" and only accepted checks and money orders which were immediately cashed. We strongly suspected fraud when **Herb Johnson/W6QKI**, the original owner of Atlas Radio disavowed any knowledge that Atlas was back in business.

Harrison also was using the Dentron name from another P.O. box on Long Island. We called Dentron's previous owner, **Dennis J. Had/K8KXK** who said he has known Harrison for years and that he was "less than ethical." We tried to reach Mike Harrison by phone but we only got his telephone answering machine message. Our calls were not returned and we decided to go with the story in our January 15th newsletter. No other publication printed the story.

A few days after publication, Michael Harrison was made aware of our write-up and telephoned us. Strangely, he was extremely pleasant to us - not critical at all. He wanted us to have the facts and said that since Atlas and Dentron were bankrupt out-of-business firms, he had every right to use their names. Harrison said he had reincorporated the companies and that although he wasn't delivering the radios right now, "We are not going to hurt anybody. We are not running away with anybody's money." He said he only had a merchandise delivery problem.

While Harrison was very convincing, the fact remains that months later he still had not delivered the goods and had not returned his customer's money ...nor contacted them further. We found Mike Harrison to be a smooth talker indeed.

On January 26th, Harrison was arrested at his home and charged with mail and wire fraud ...later released after posting a \$25,000 bond. A couple of weeks ago he was criminally indicted by the federal grand jury. We will keep you posted on the outcome of the trial. No date has yet been set.